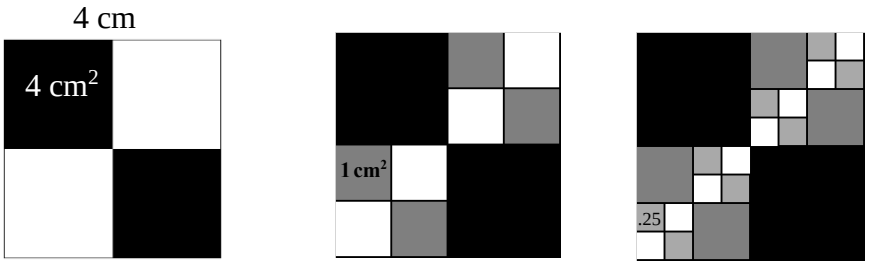
10. Jakub

Program Name: Jakub.java Input File: jakub.dat

Jakub is quite the graphic artist and has been experimenting with drawing square-based patterns, dividing a square into four parts, coloring two diagonal squares, and then dividing the other two smaller squares into four parts, coloring two, dividing the other two, and so on until the divided square reaches a size smaller than 1 centimeter, where they become too small to divide anymore.

His analytical mind wonders what the area is of the colored squares, and sets out to do the math, but has some trouble figuring this out. Please help Jakub calculate how much are of his repeatedly divided square is colored in.

For example, he might start with a 4 cm square, like the one shown below, divide it into four 2X2 squares, each with an area of 4 cm^2, two of which he colors in for a total of 8 cm^2. The two remaining squares are then divided into four 1 cm squares, adding 4 cm^2 to the colored area total, for a total of 12 cm^2, and the remaining 1 cm squares are each divided into squares measuring 1/2 by 1/2, adding a total area of 2 cm^2 more (8 times 0.25 cm^2), for a total of 14 cm^2 of colored-in area.



In another example using a 5 cm square, the total colored-in area would be 21.875 (6.25 + 6.25 + 1.5625 + ….).

Input: Several integers N (1<=N<=100), each on one line, each representing the side length of a square.

Output: The total area for each NXN square colored in using the process described above, rounded to three decimal places of precision.

Sample input:

```
4
5
24
16
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Sample output:

```
14.000
21.875
558.000
248.000
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